Space Weather Forecast

Issued on Sunday, 06 February 2022 at 00:22 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Moderate flares throughout. Reducing Chance of Minor Geomagnetic Storm activity.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: There are currently four numbered sunspot regions. Solar activity was low, with a number of Common class flares observed. The majority of the flares from AR2936, a large, complex and mature bi-polar region now disappearing across the northwestern limb. The remaining regions are also bi-polar with little overall change over the last 24 hours. No Earth-bound coronal mass ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: The solar wind started the period slightly elevated becoming elevated by 05/1000 UTC as a result of an anticipated fast wind arriving. The magnetic field strength was mostly weak as was the all-important north-south component. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count of energetic particles (high energy protons) was at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be mainly low, with a chance of moderate class flares.

Solar Wind / Geomagnetic Activity: Solar winds are likely to remain slightly elevated to elevated through the forecast period due to incursions of fast wind. Geomagnetic activity is likely to be Quiet to Unsettled with probable Active intervals at times and a chance (20-30%) of a minor geomagnetic storm interval, although this probability will reduce to a slight chance for days 3 and 4 (8th and 9th Feb).

Energetic Particles / Solar Radiation: The count of energetic particles (high energy protons) is forecast to remain at background levels whilst the current sunspots remain quiet and stable, with no radiation storms currently expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	20	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	20	20	10
Very Active	R3 to R5 X	No	2	2	2	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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